

TITLE: STRAINED SEMICONDUCTOR BY FULL WAFER BONDING
INVENTORS NAME: Leonard Forbes et al.
DOCKET NO.: 1303.109US1

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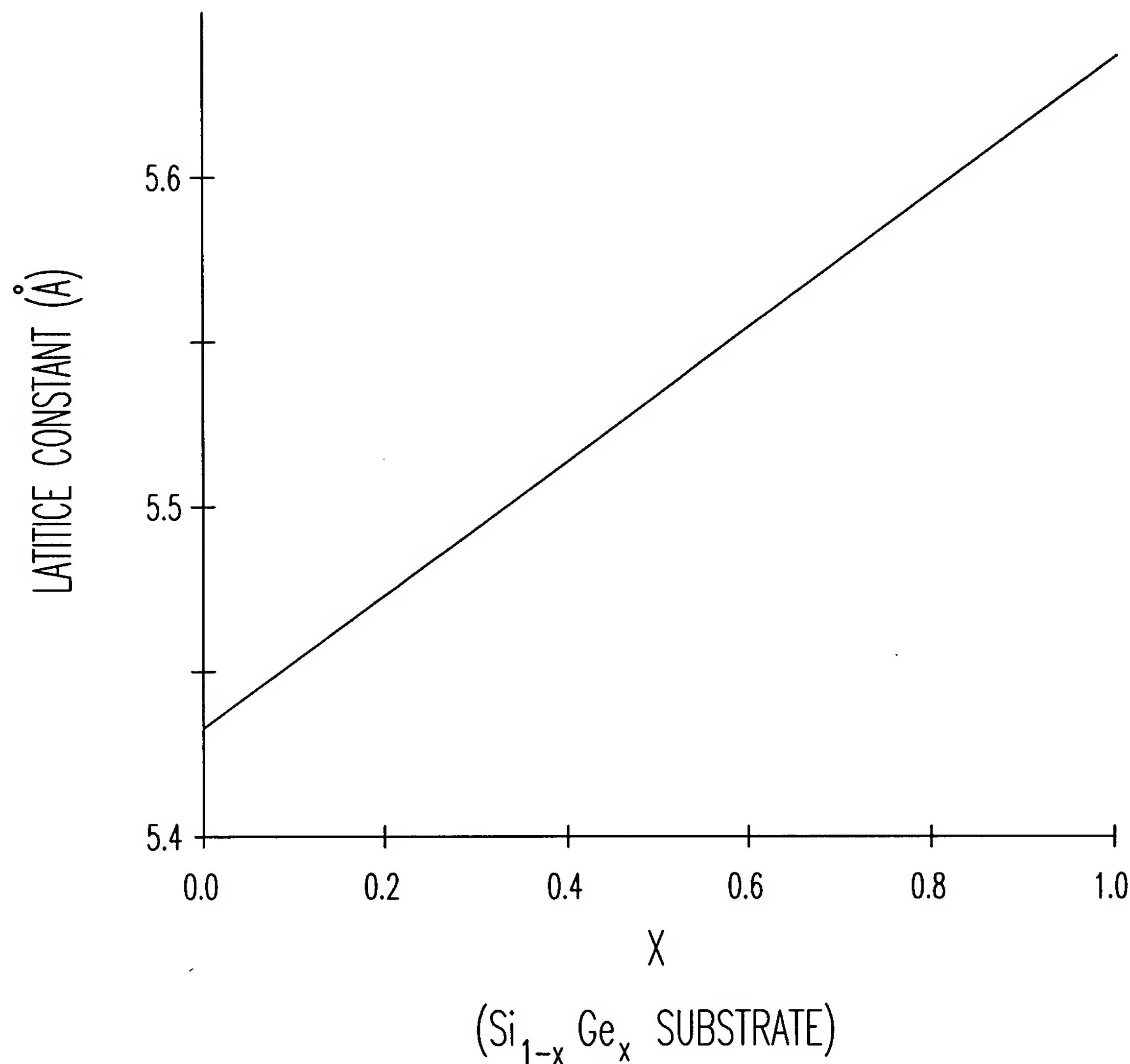
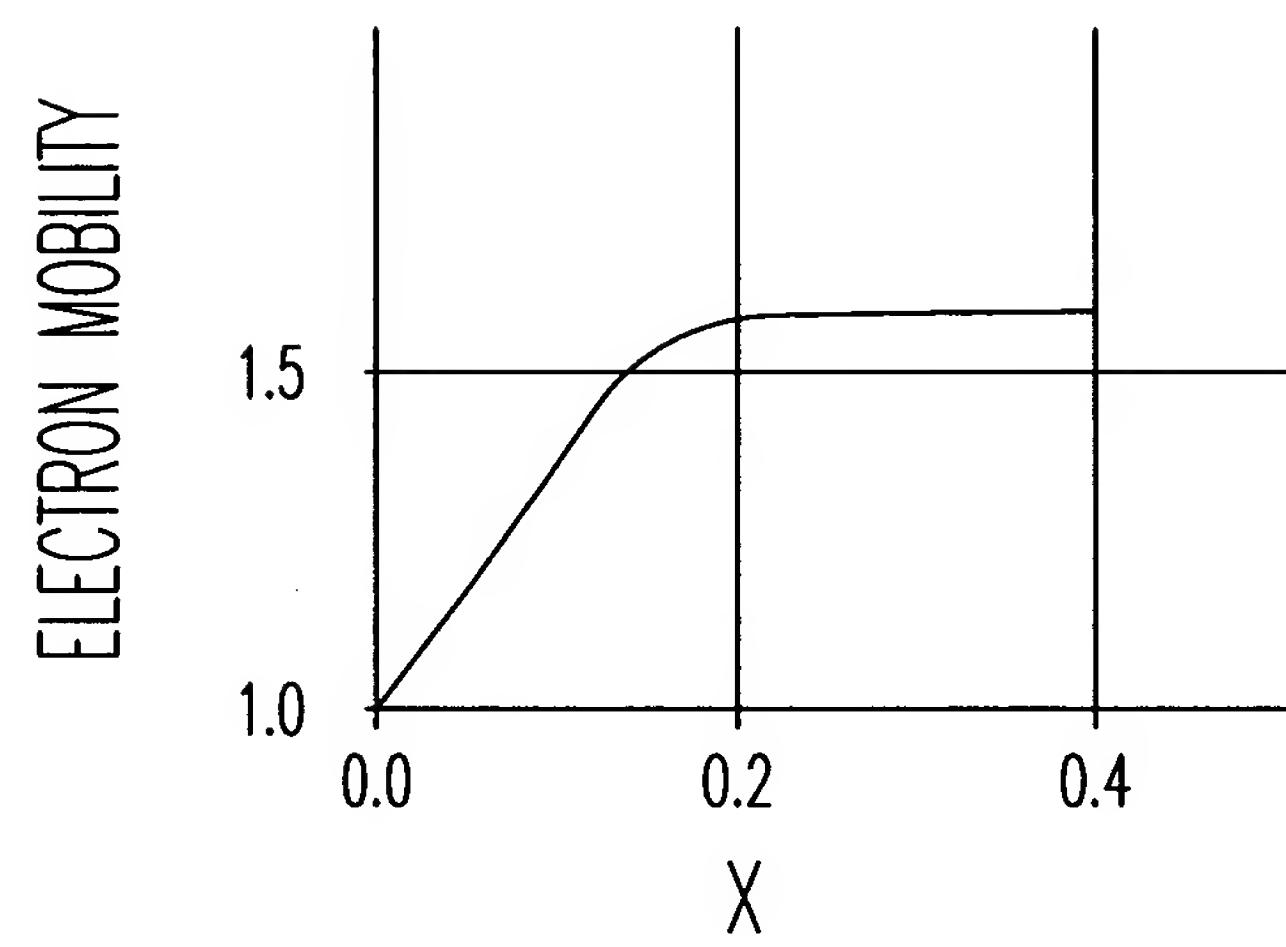


FIG. 1
(PRIOR ART)

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$(\text{Si}_{1-x} \text{Ge}_x)$

FIG. 2
(PRIOR ART)

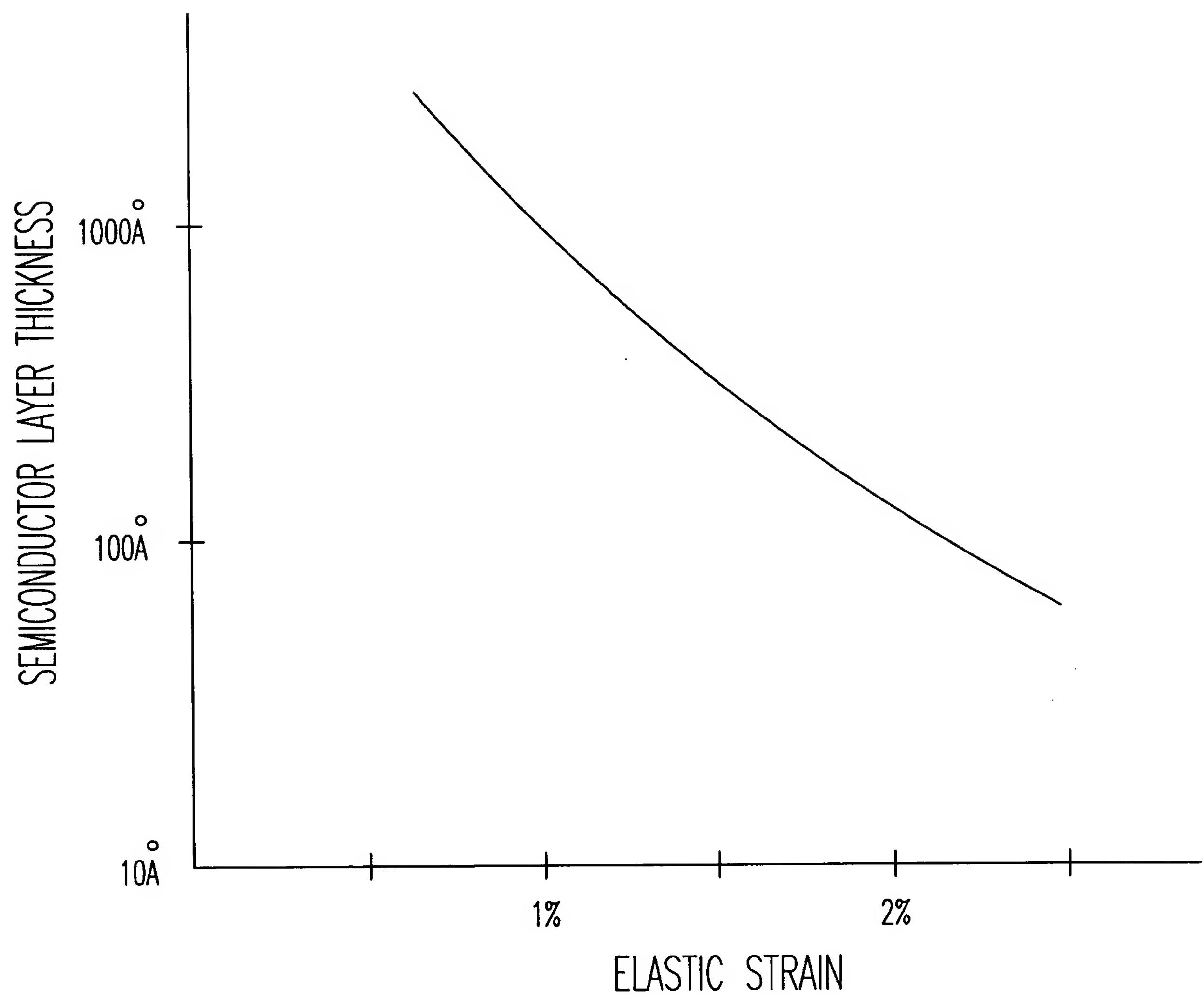


FIG. 3
(PRIOR ART)

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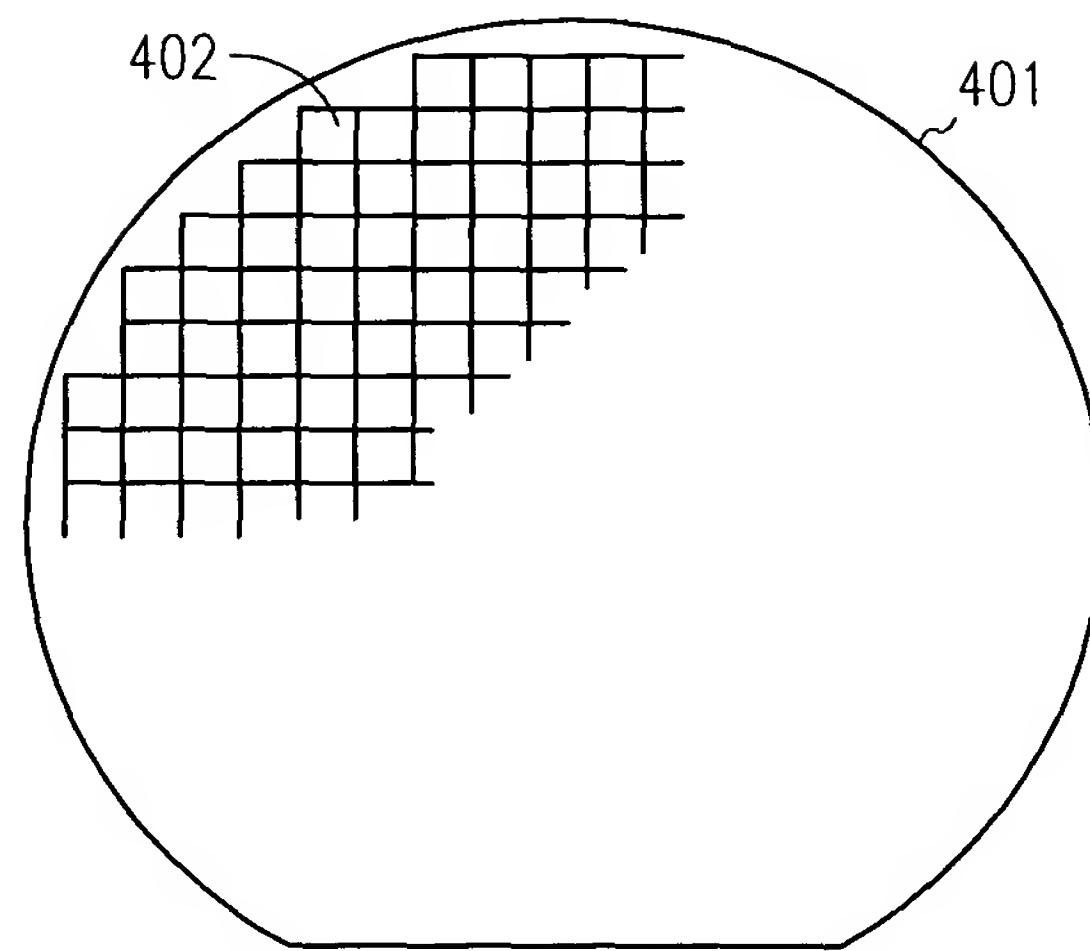


FIG. 4A

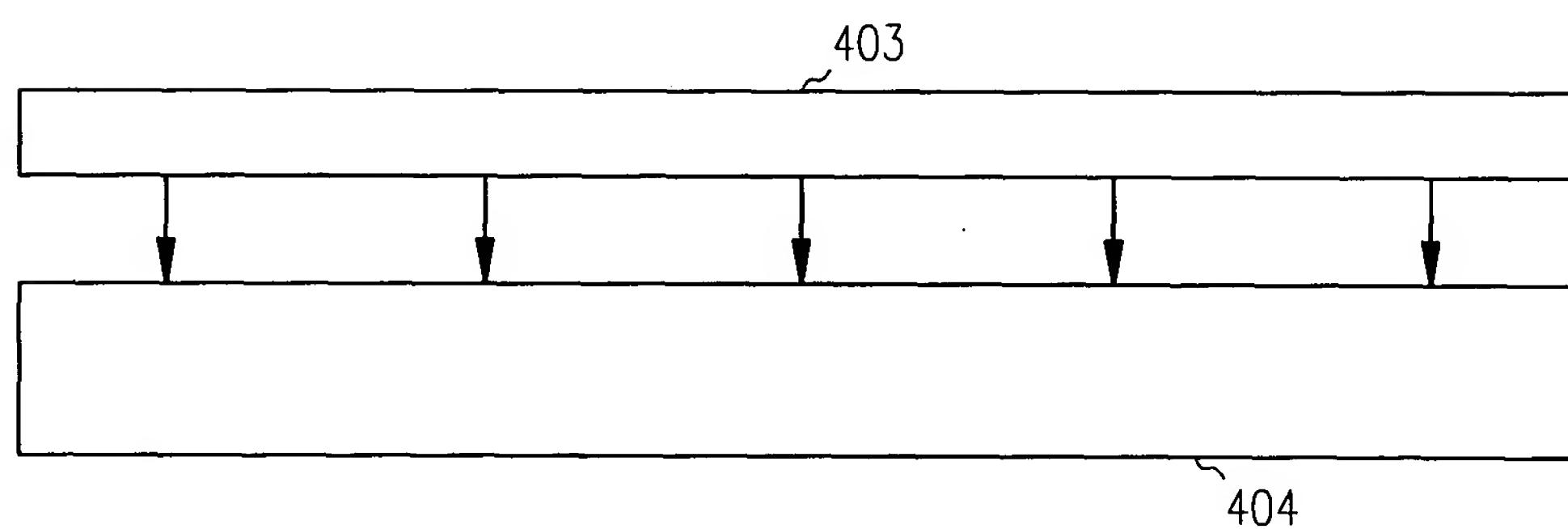


FIG. 4B

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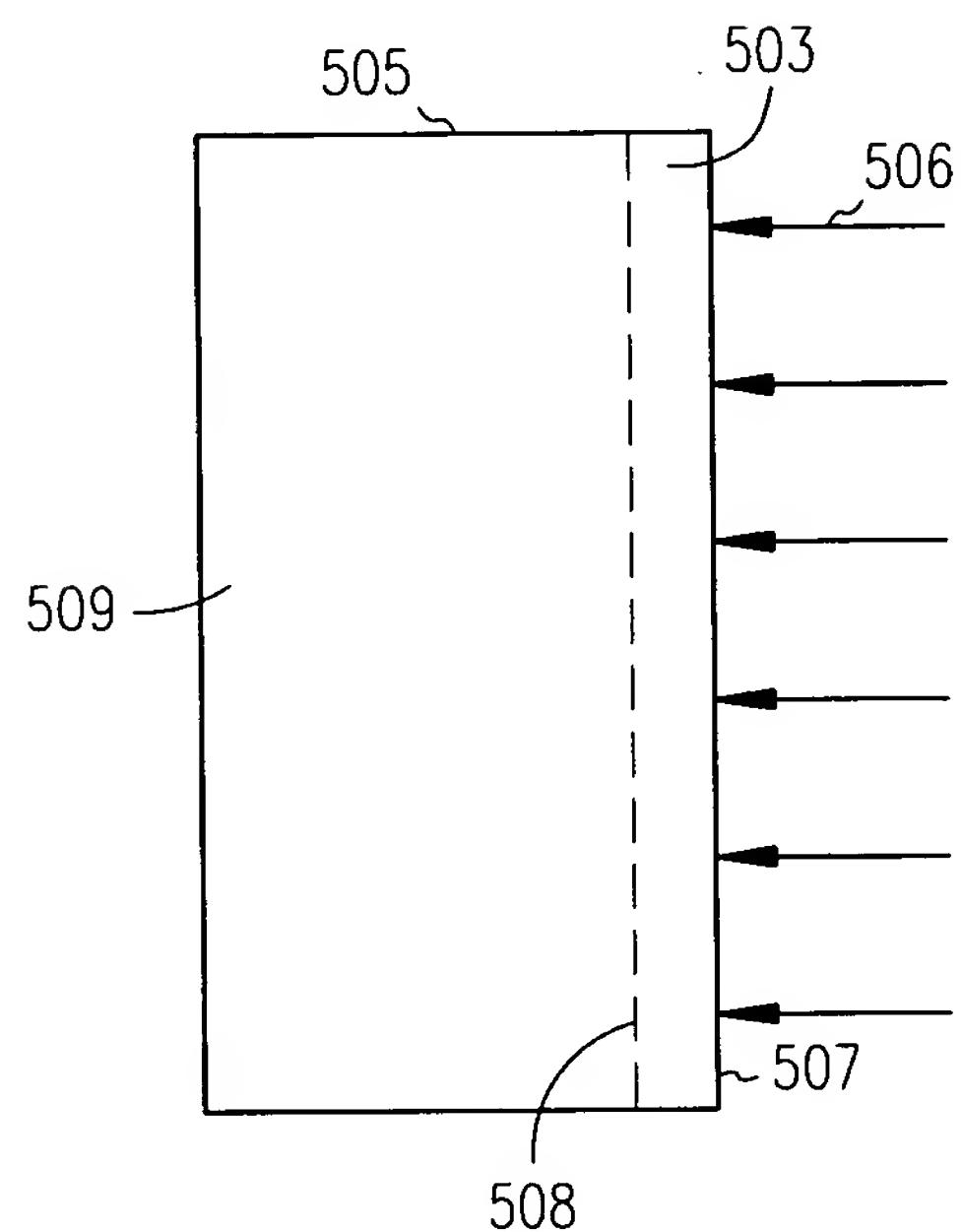


FIG. 5A

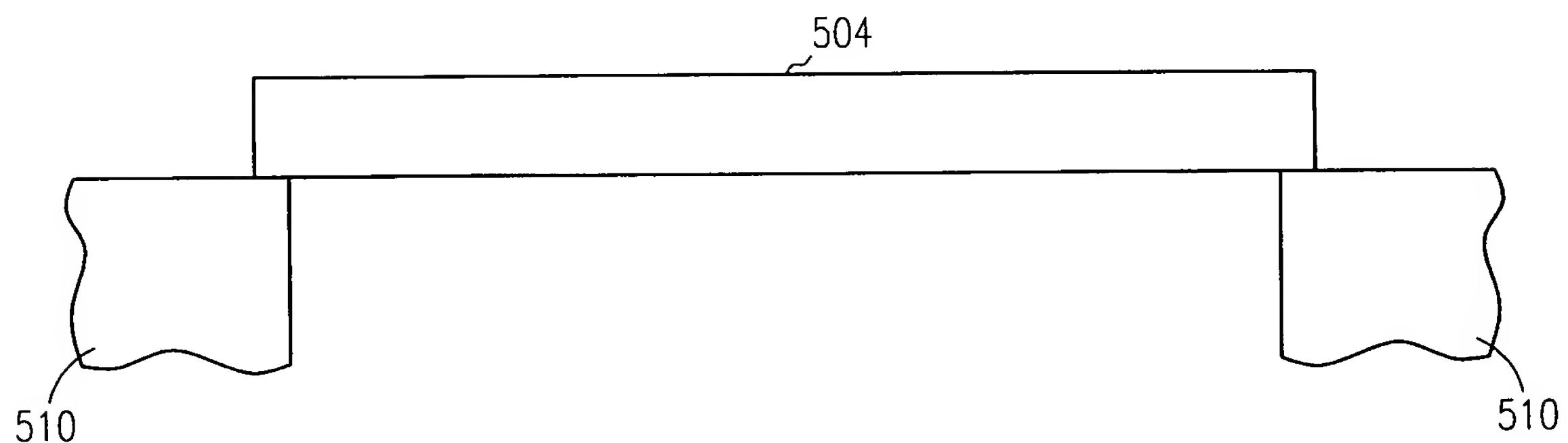


FIG. 5B

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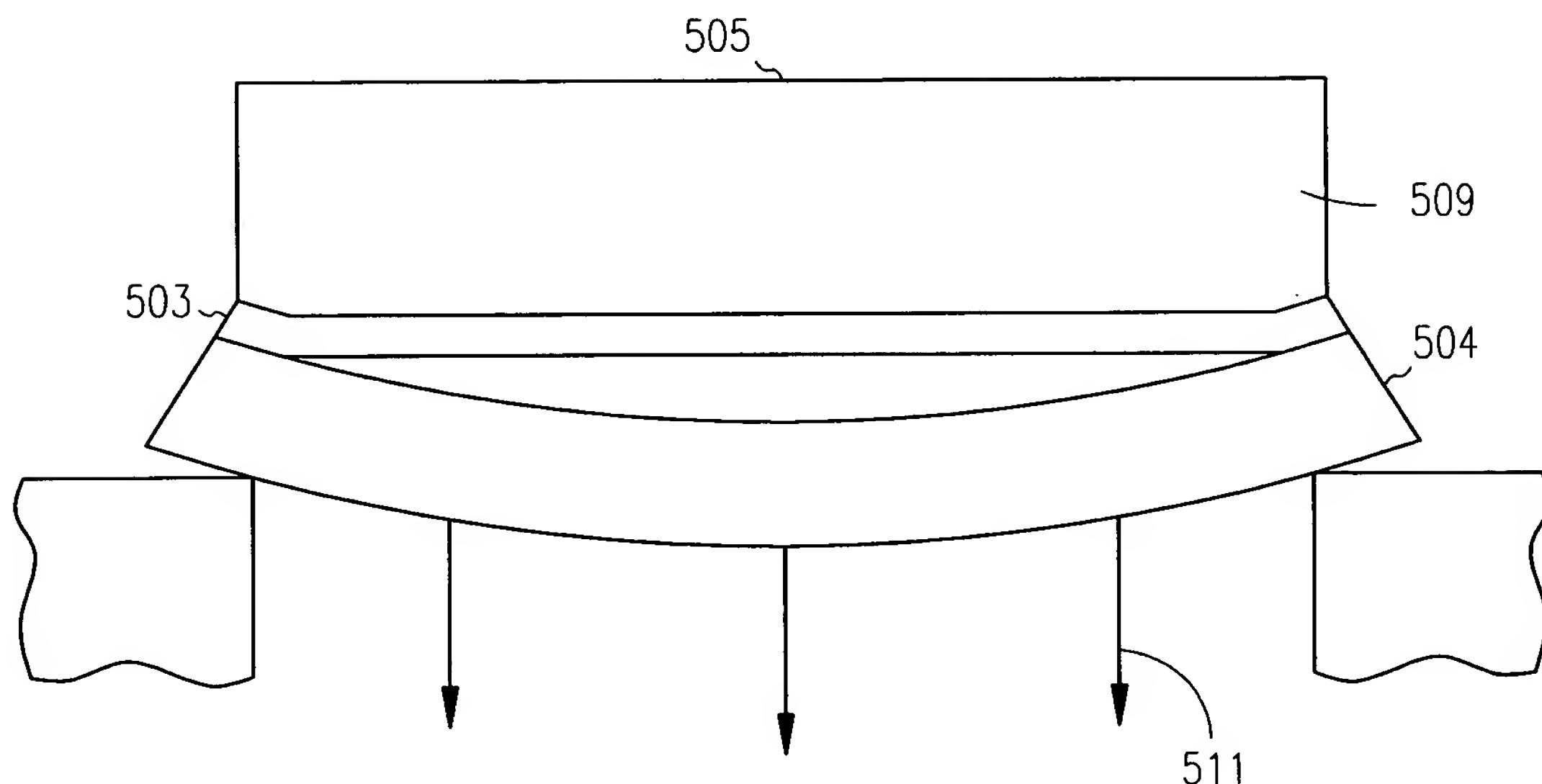


FIG. 5C

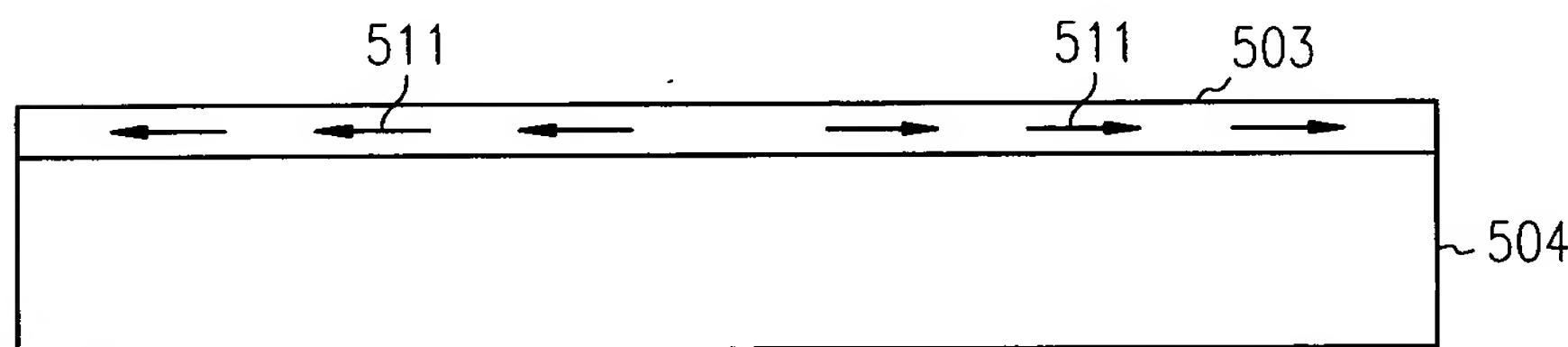


FIG. 5D

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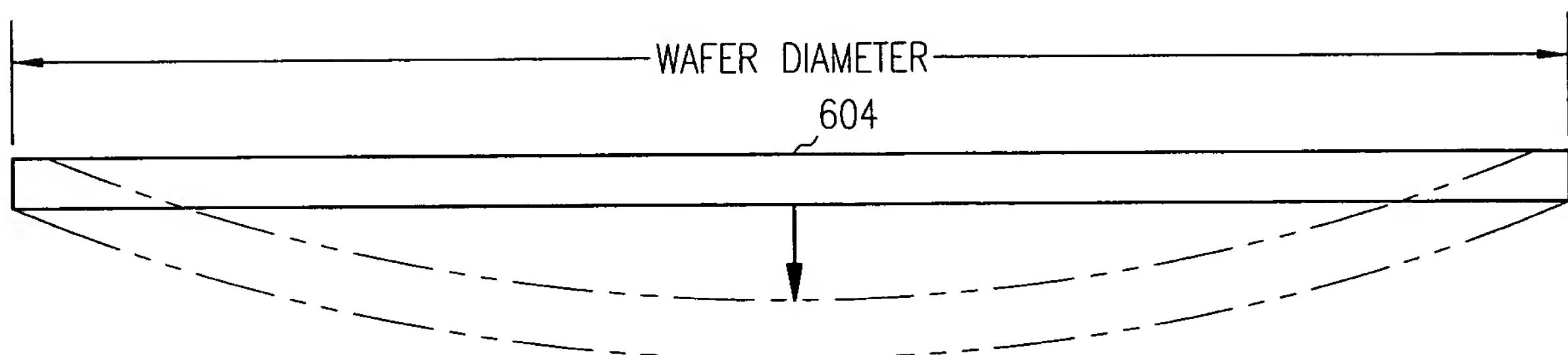


FIG. 6A

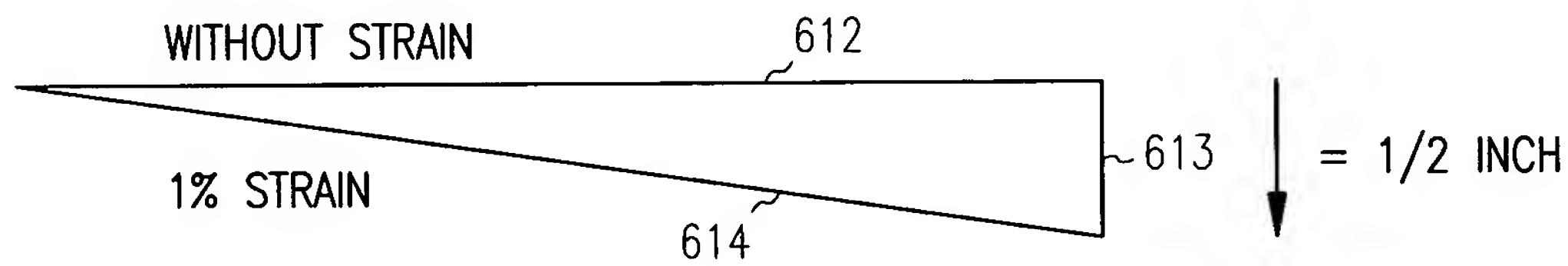


FIG. 6B

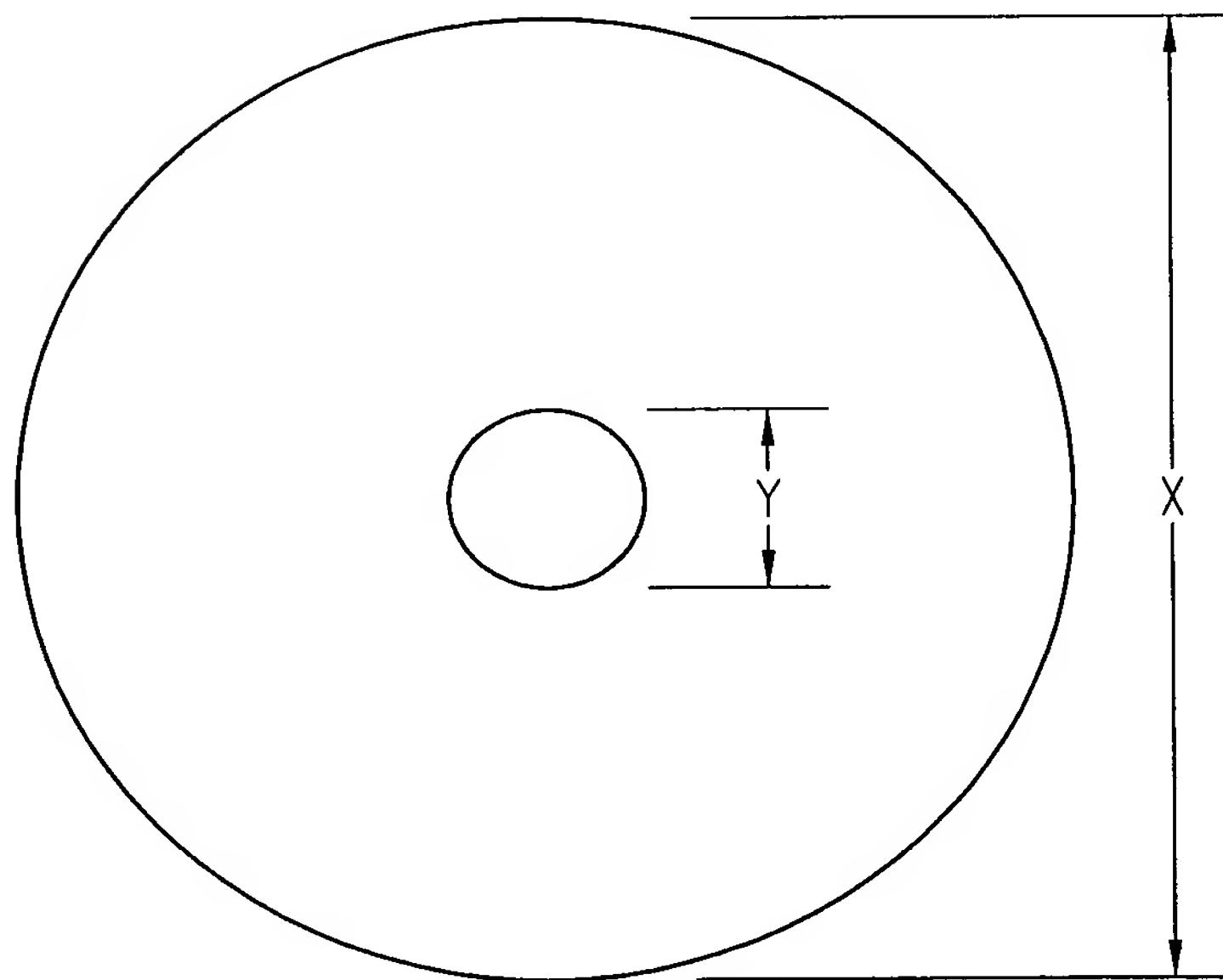


FIG. 7A

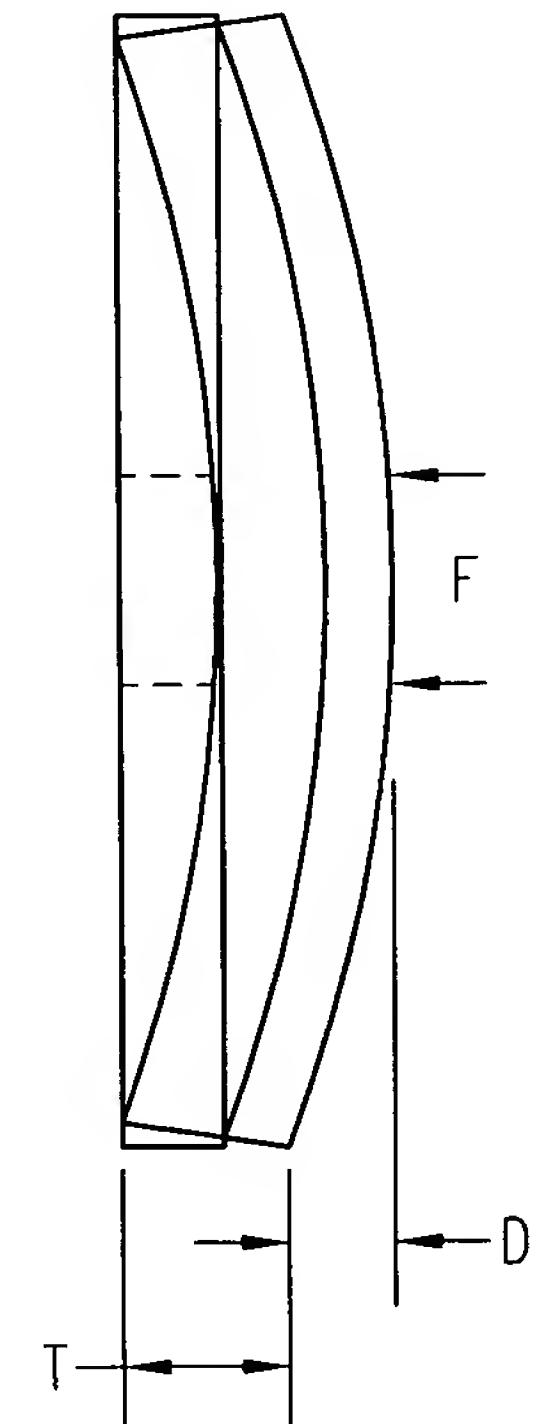


FIG. 7B

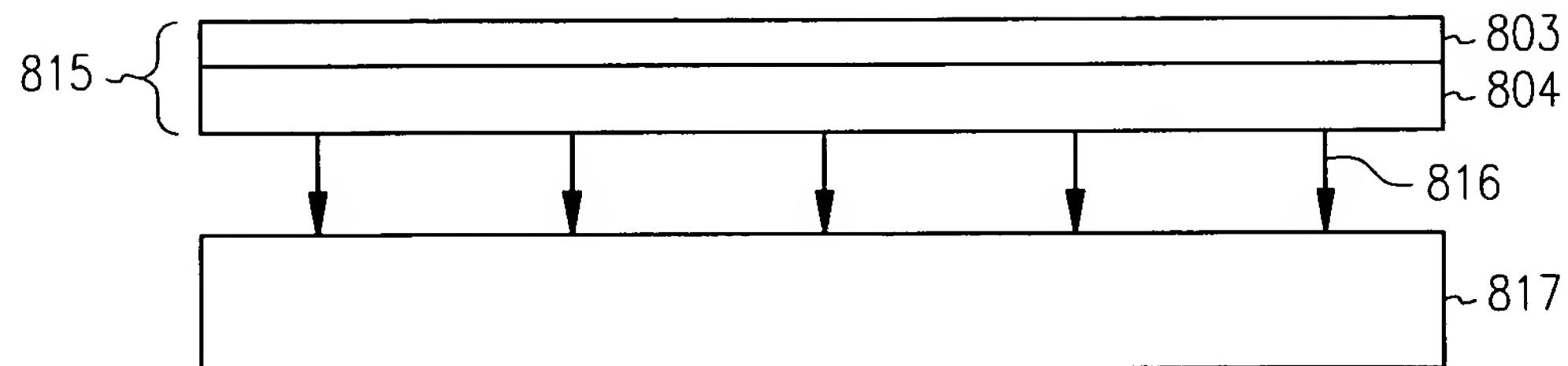


FIG. 8

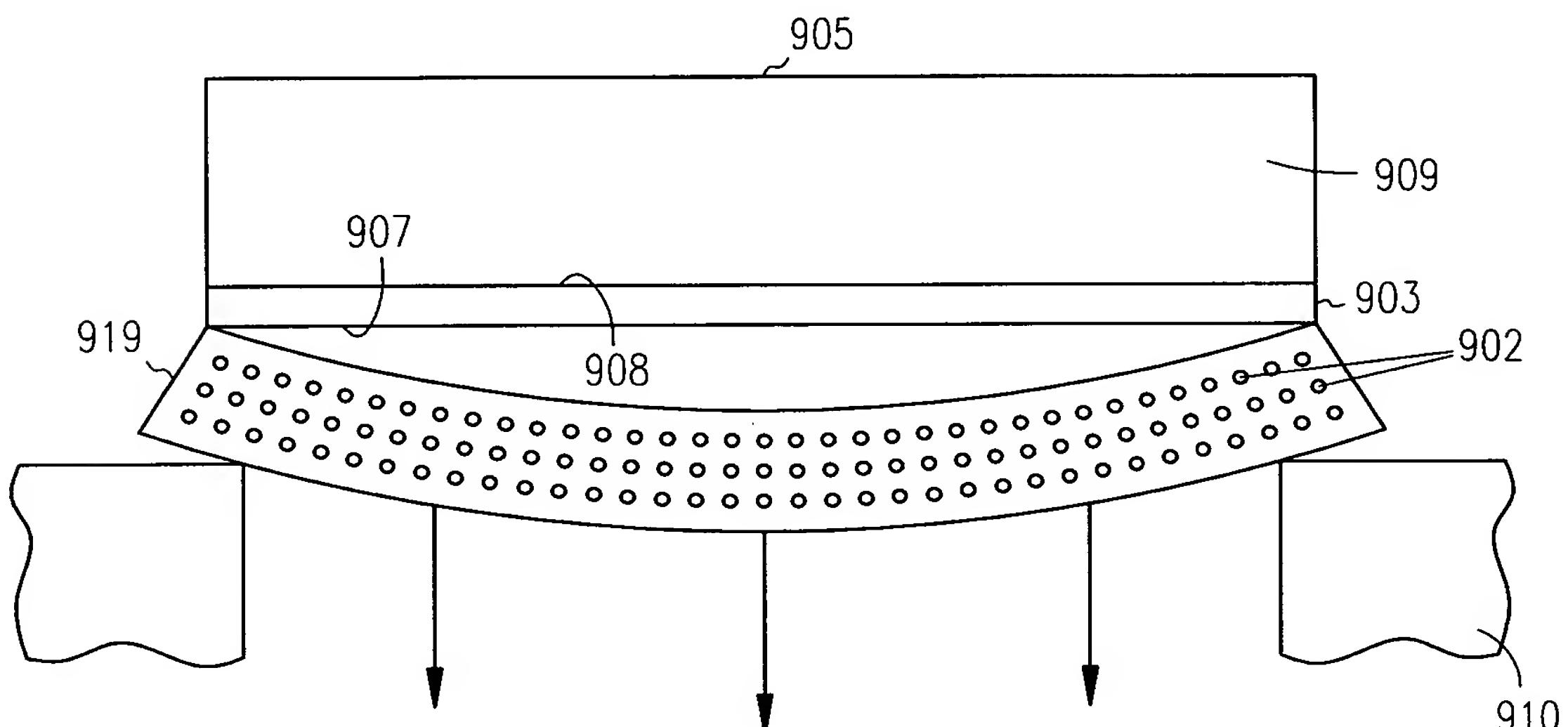


FIG. 9A

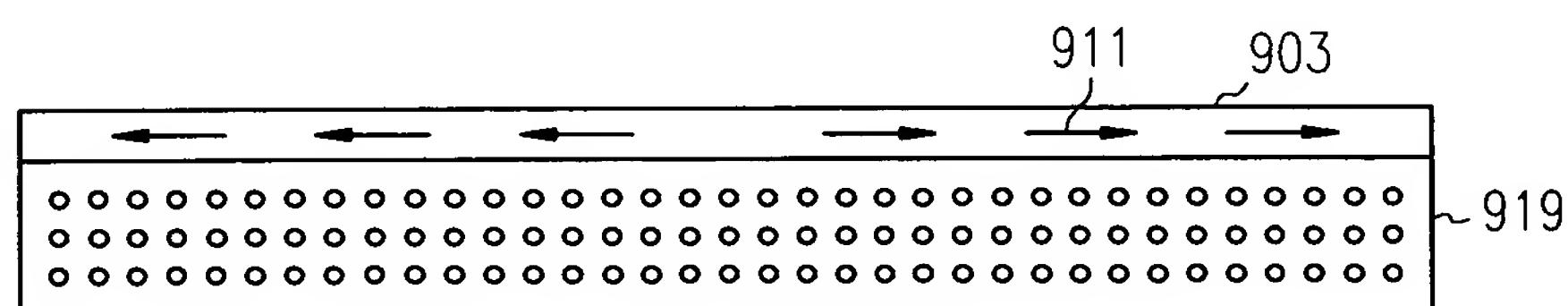


FIG. 9B

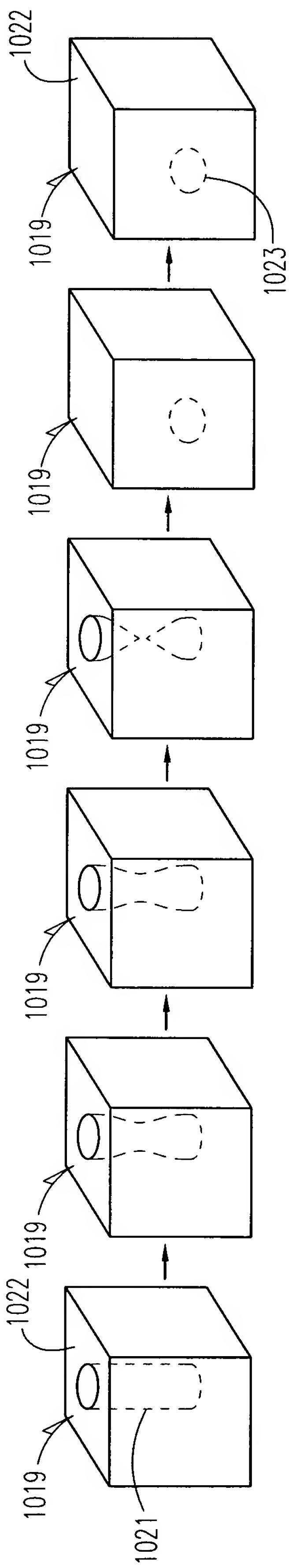


FIG. 10A FIG. 10B FIG. 10C FIG. 10D FIG. 10E FIG. 10F

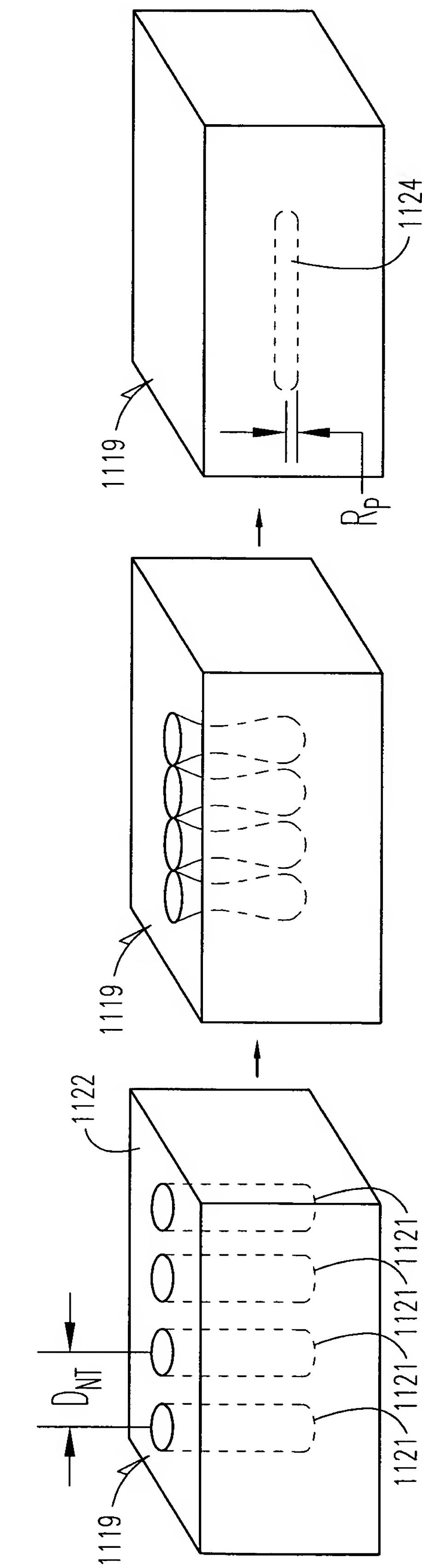


FIG. 11A FIG. 11B FIG. 11C

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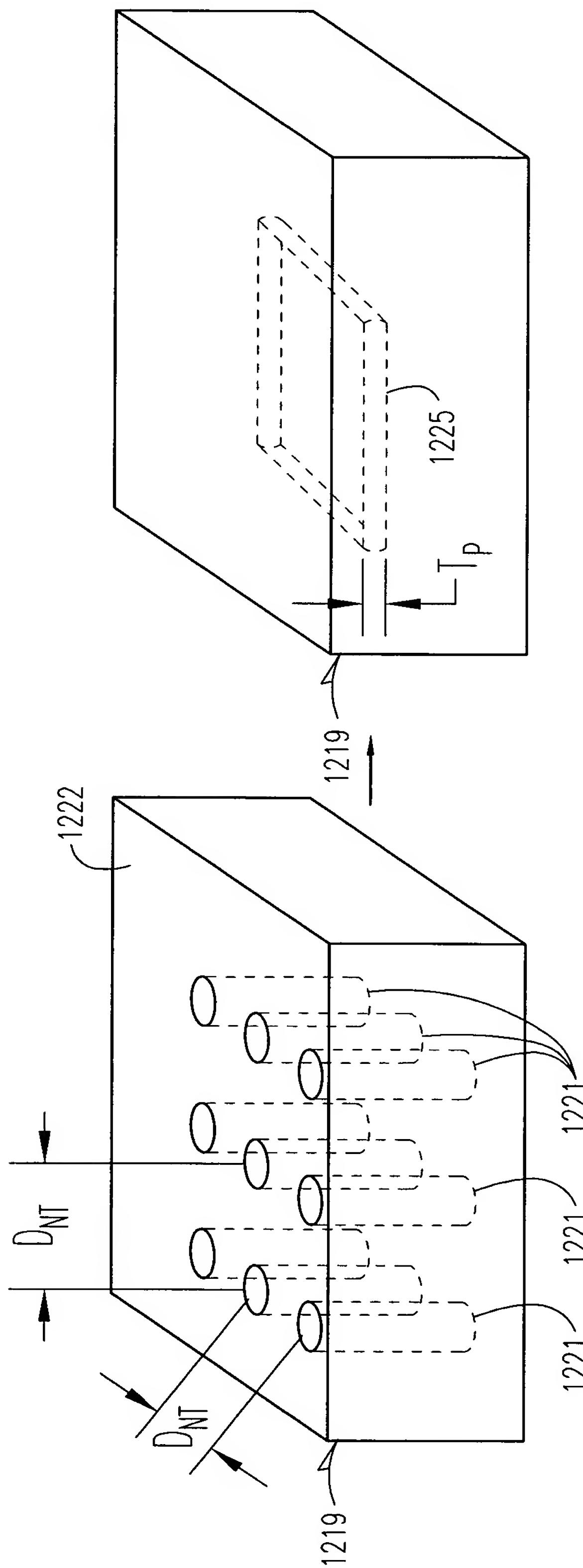


FIG. 12B

FIG. 12A

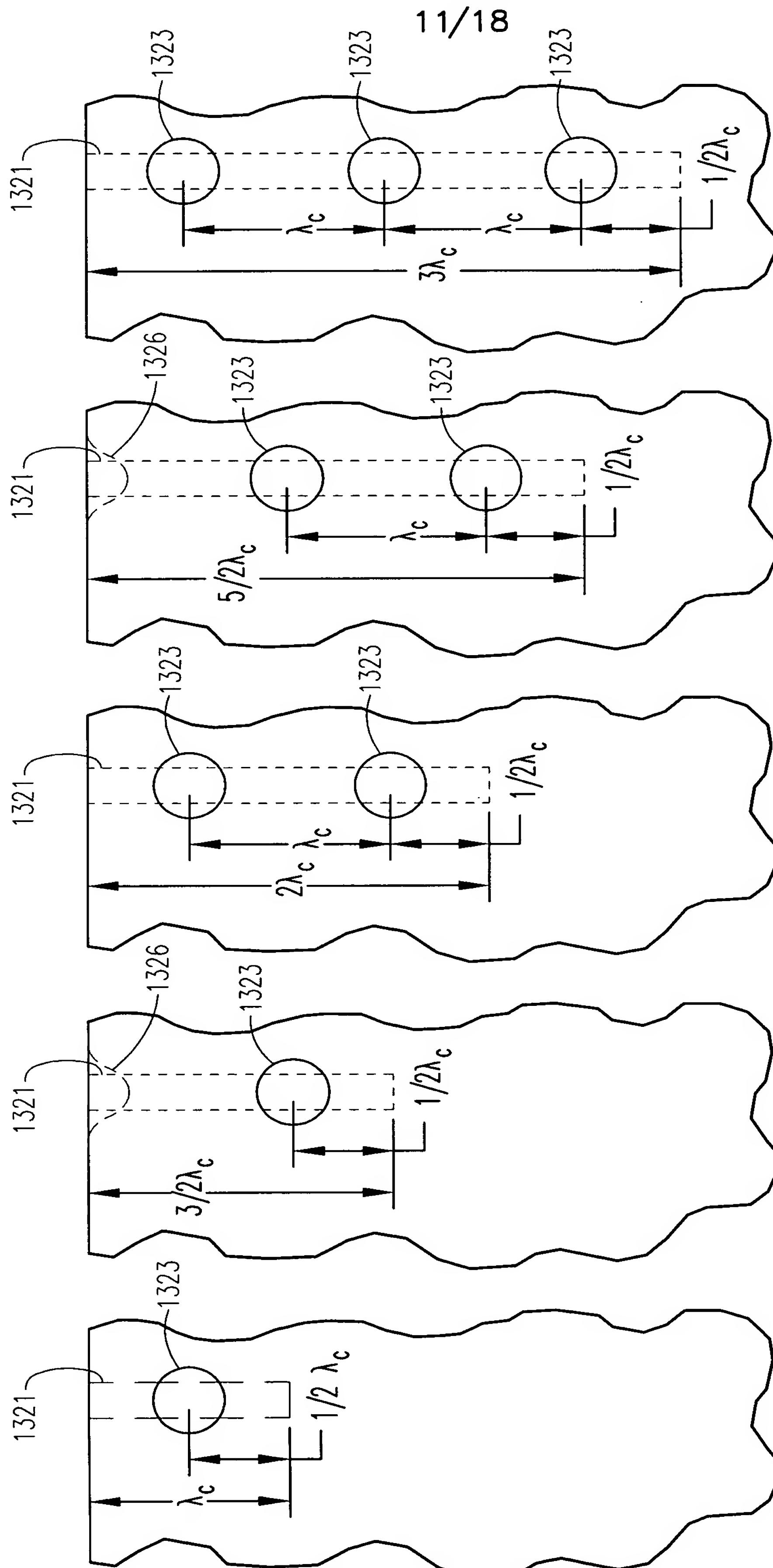


FIG. 13A

FIG. 13B

FIG. 13C

FIG. 13D

FIG. 13E

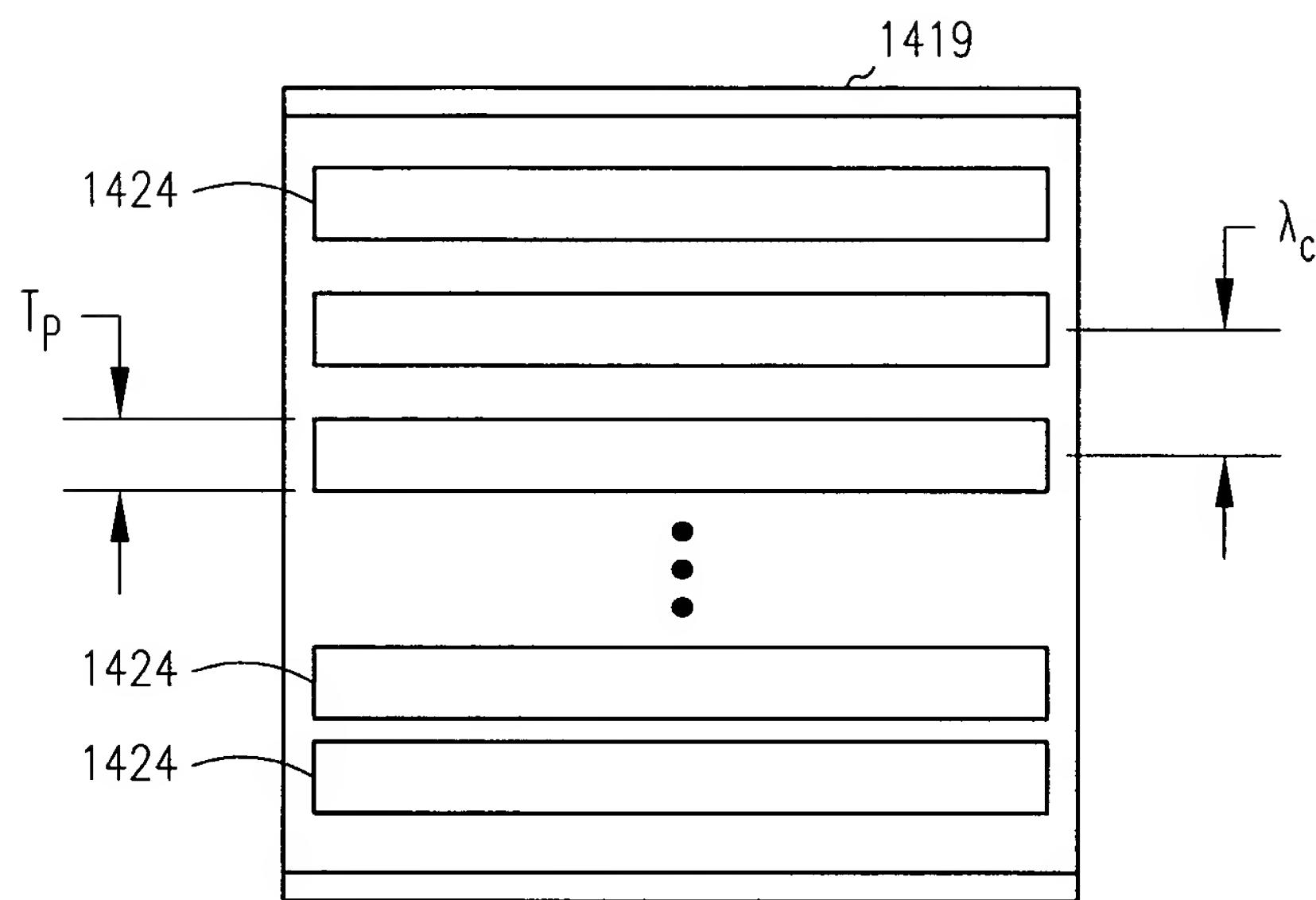


FIG. 14

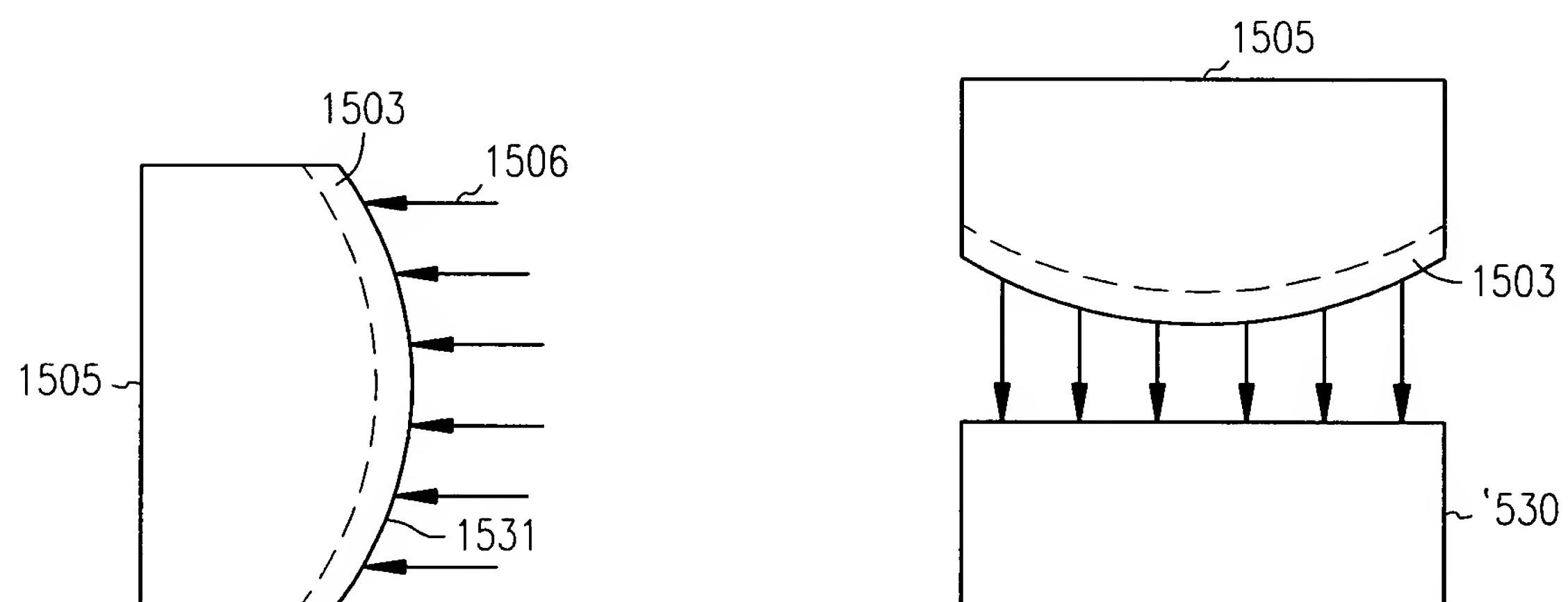


FIG. 15A

FIG. 15B

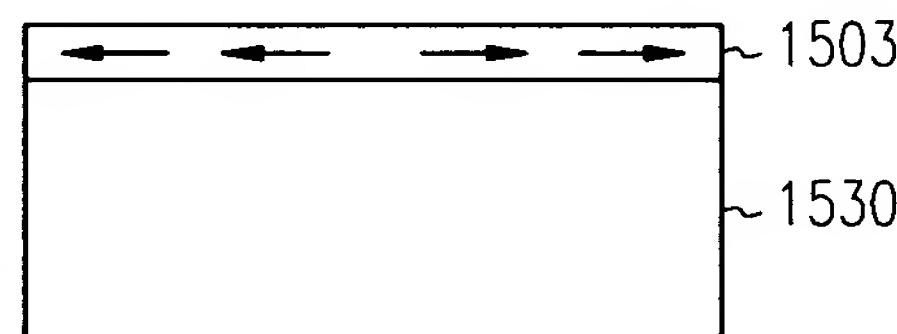


FIG. 15C

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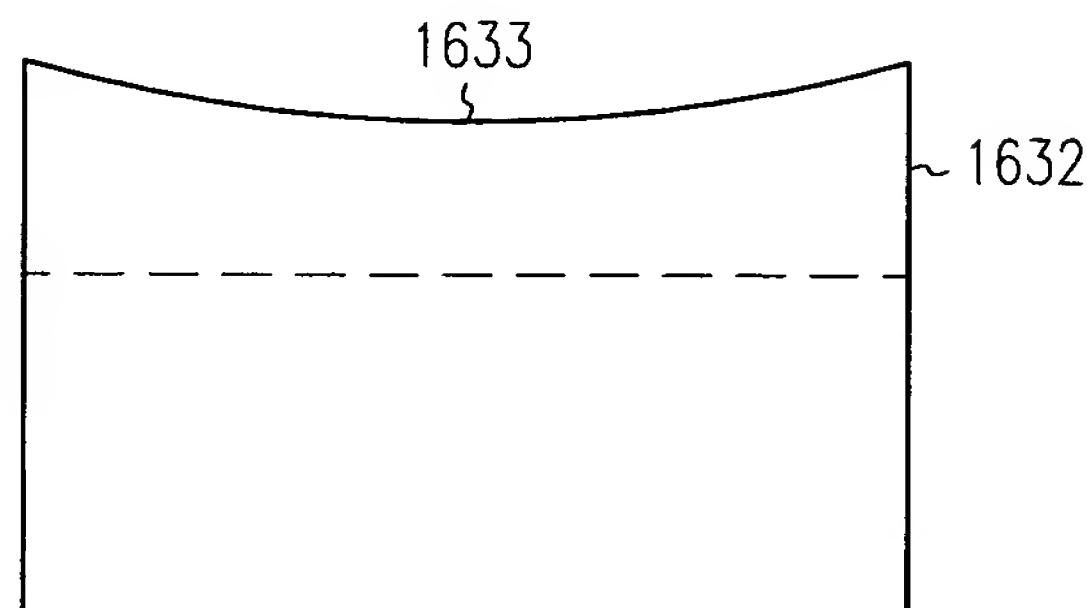


FIG. 16A

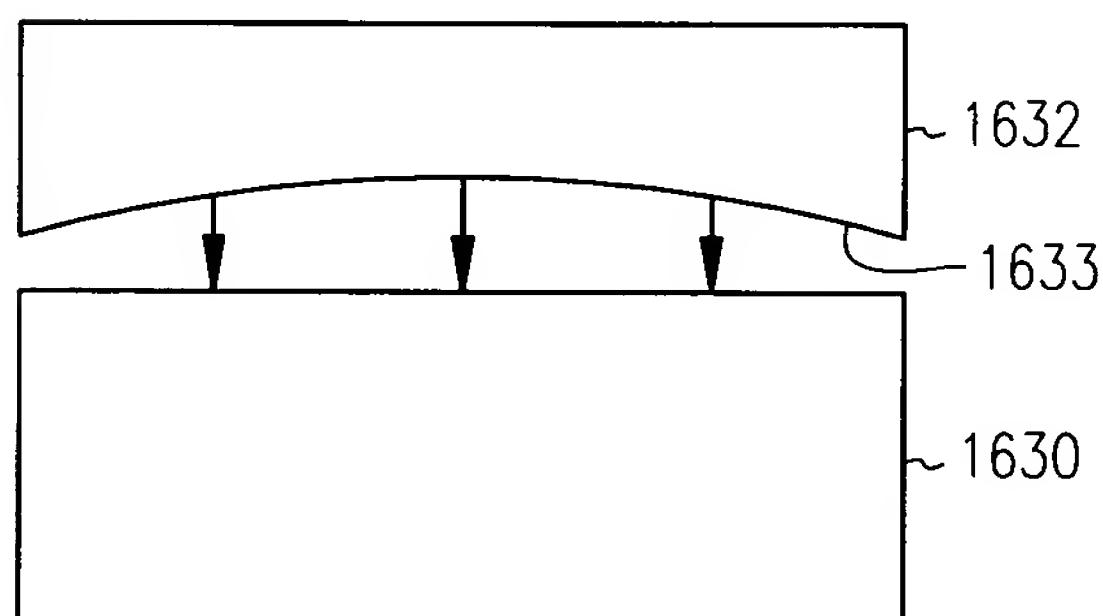


FIG. 16B

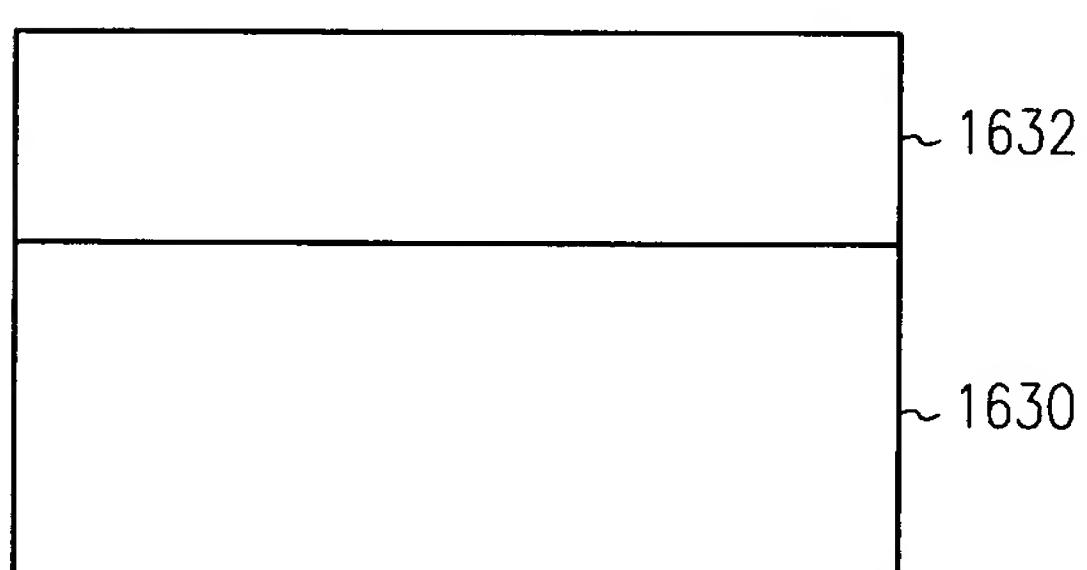


FIG. 16C

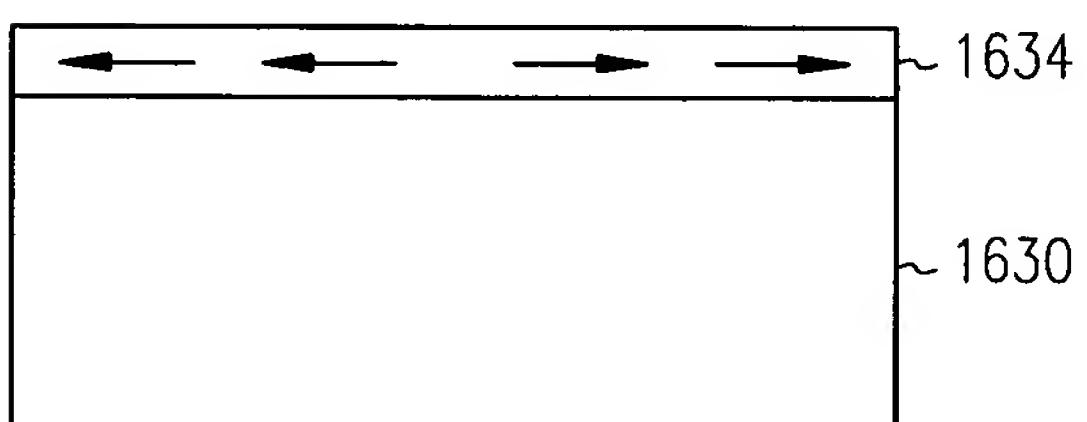


FIG. 16D

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1740
FORM A PREDETERMINED BOWED CONTOUR IN A
FLEXIBLE ONE OF A WAFER-SIZED SEMICONDUCTOR
MEMBRANE AND A SUBSTRATE WAFER

1741
BOND THE WAFER-SIZED SEMICONDUCTOR
MEMBRANE TO THE SUBSTRATE WAFER / STRAIGHTEN
THE PREDETERMINED BOWED CONTOUR

FIG. 17

1840
APPLY FORCE TO BOW FLEXIBLE SUBSTRATE WAFER

1842
BOND PERIPHERY OF WAFER-SIZED SEMICONDUCTOR
MEMBRANE TO PERIPHERY OF THE SUBSTRATE WAFER

1843
REMOVE FORCE ALLOWING THE
FLEXIBLE SUBSTRATE WAFER TO STRAIGHTEN

FIG. 18

1940
APPLY FORCE TO BOW THIN SUBSTRATE

1942
BOND PERIPHERY OF WAFER-SIZED SEMICONDUCTOR
MEMBRANE TO PERIPHERY OF THE SUBSTRATE WAFER

1943
REMOVE FORCE ALLOWING THE
FLEXIBLE SUBSTRATE WAFER TO STRAIGHTEN

1944
BOND COMPOSITE OF MEMBRANE AND
THIN SUBSTRATE TO THICKER CARRIER SUBSTRATE

FIG. 19

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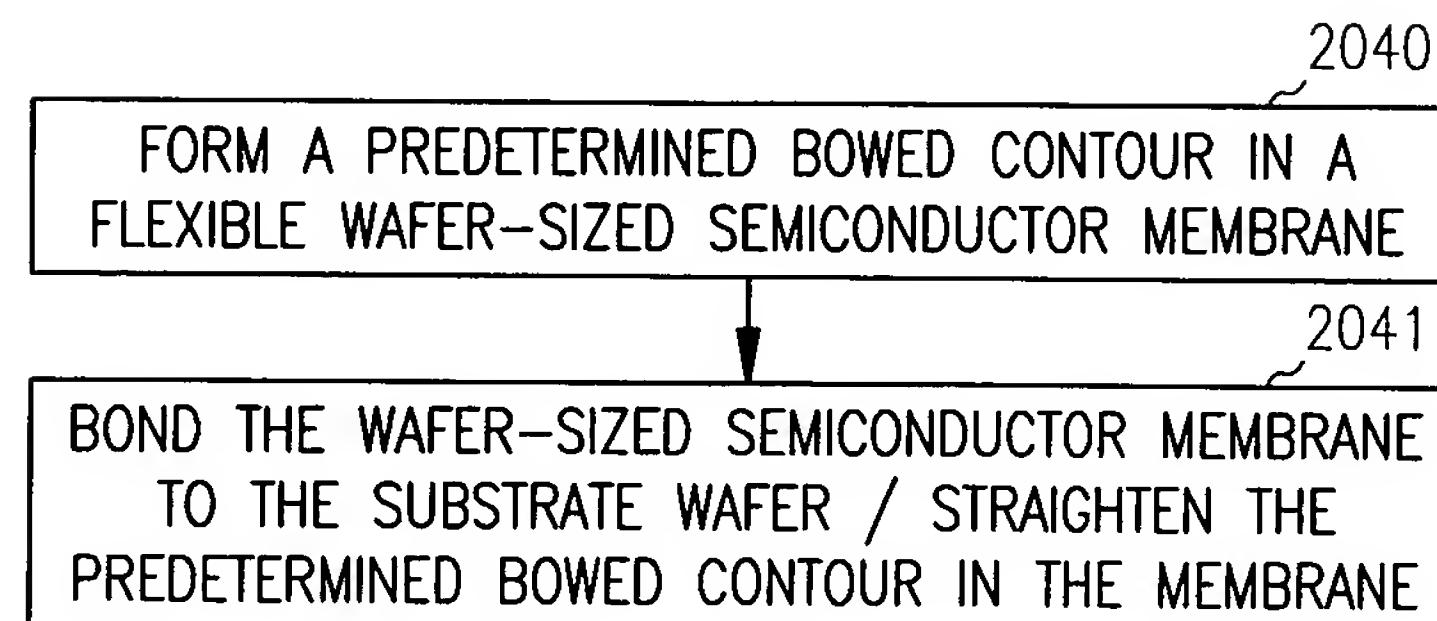


FIG. 20

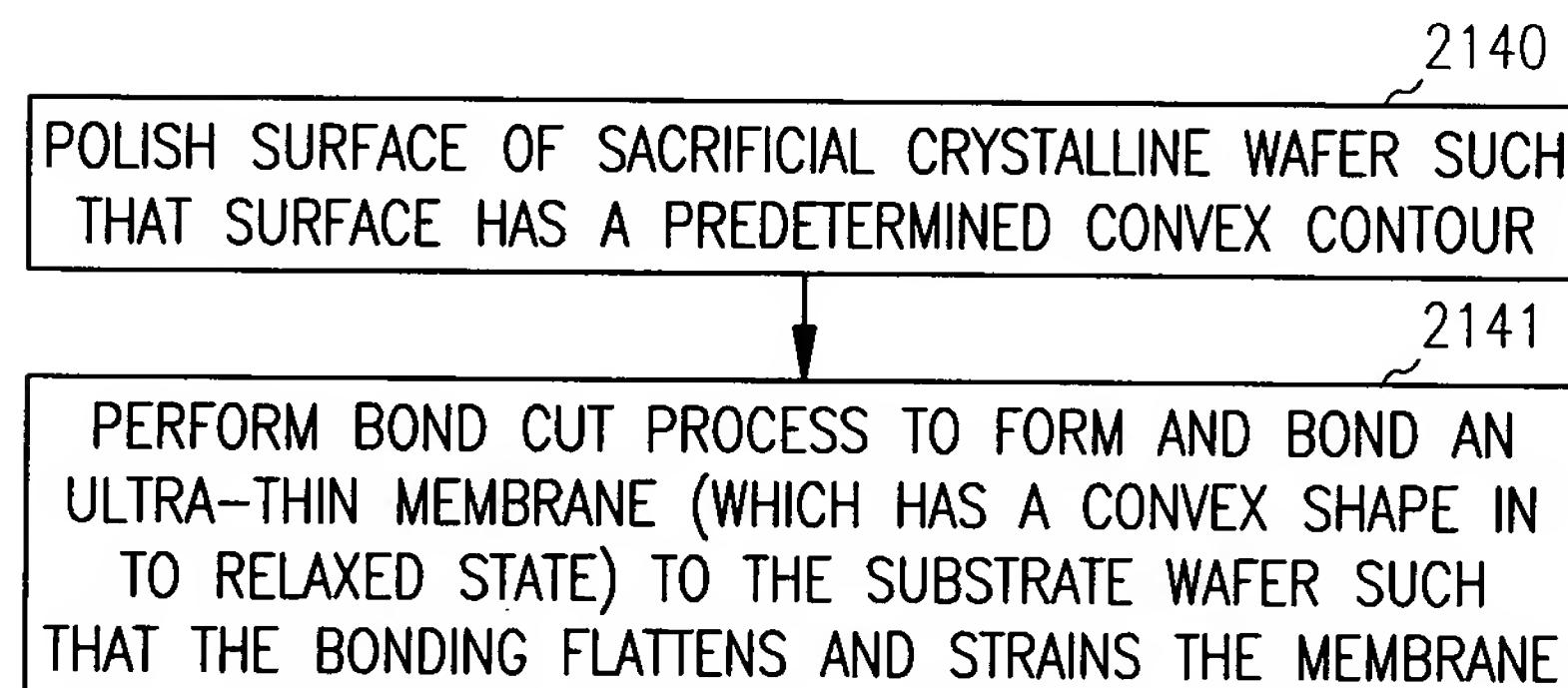


FIG. 21

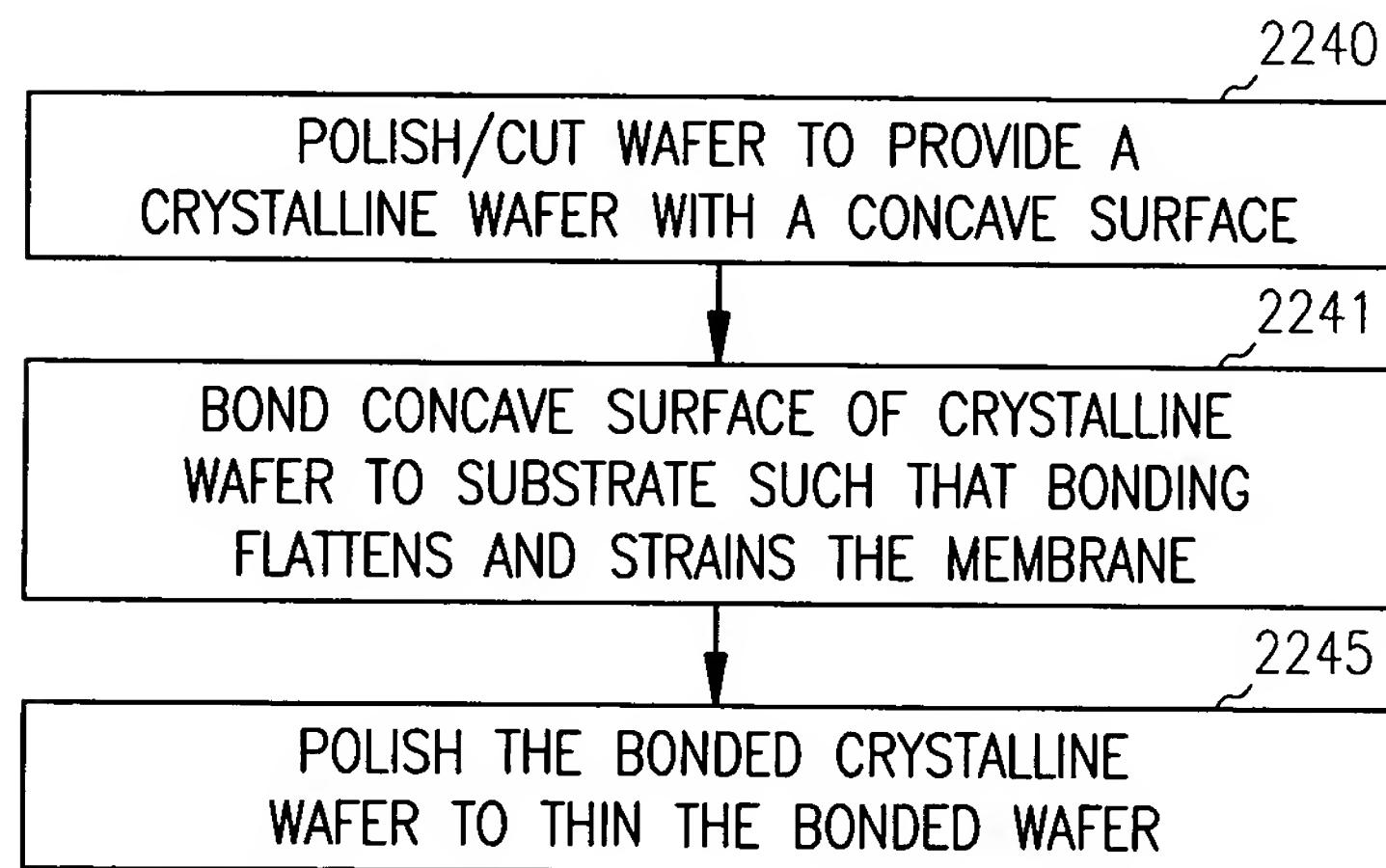


FIG. 22

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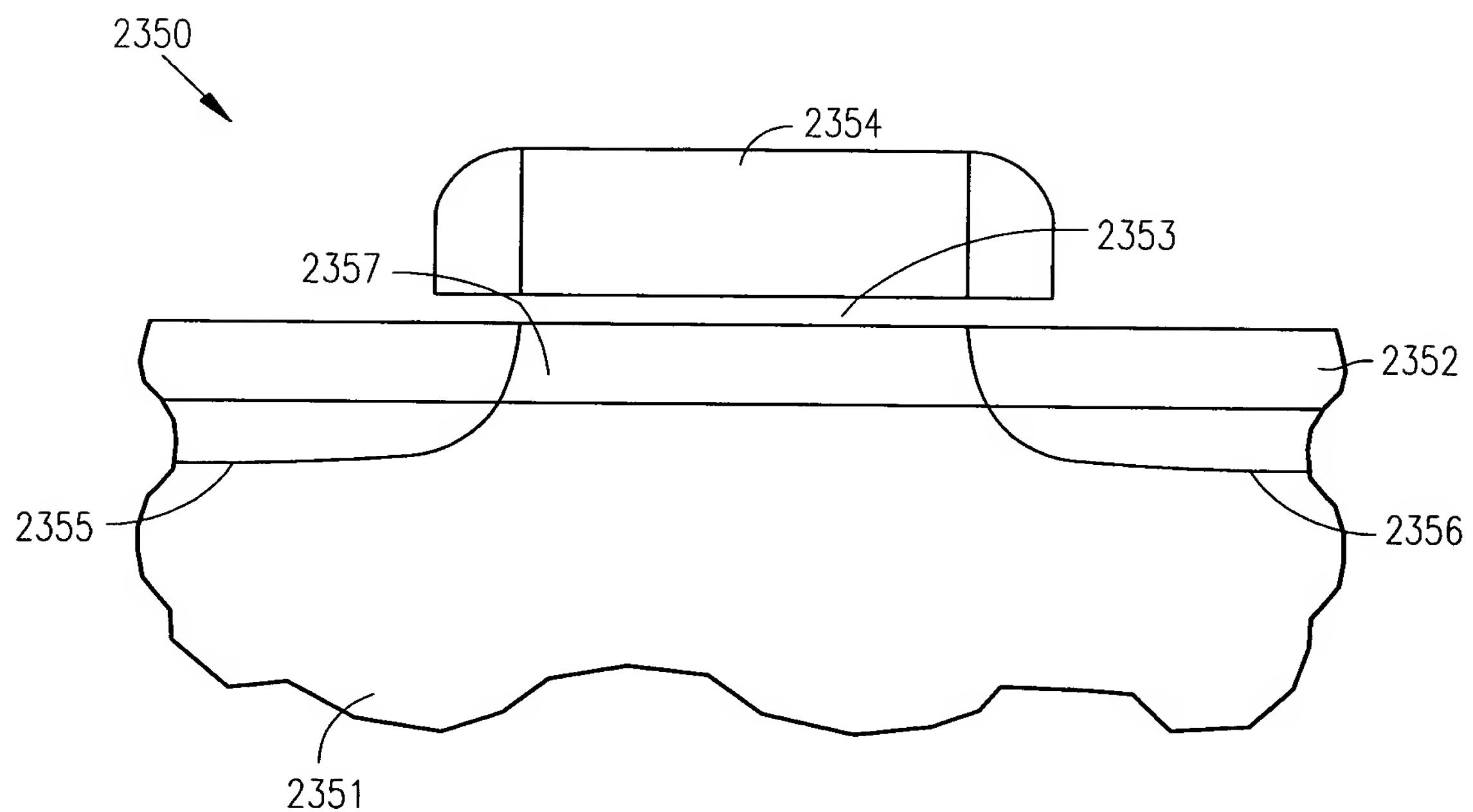


FIG. 23

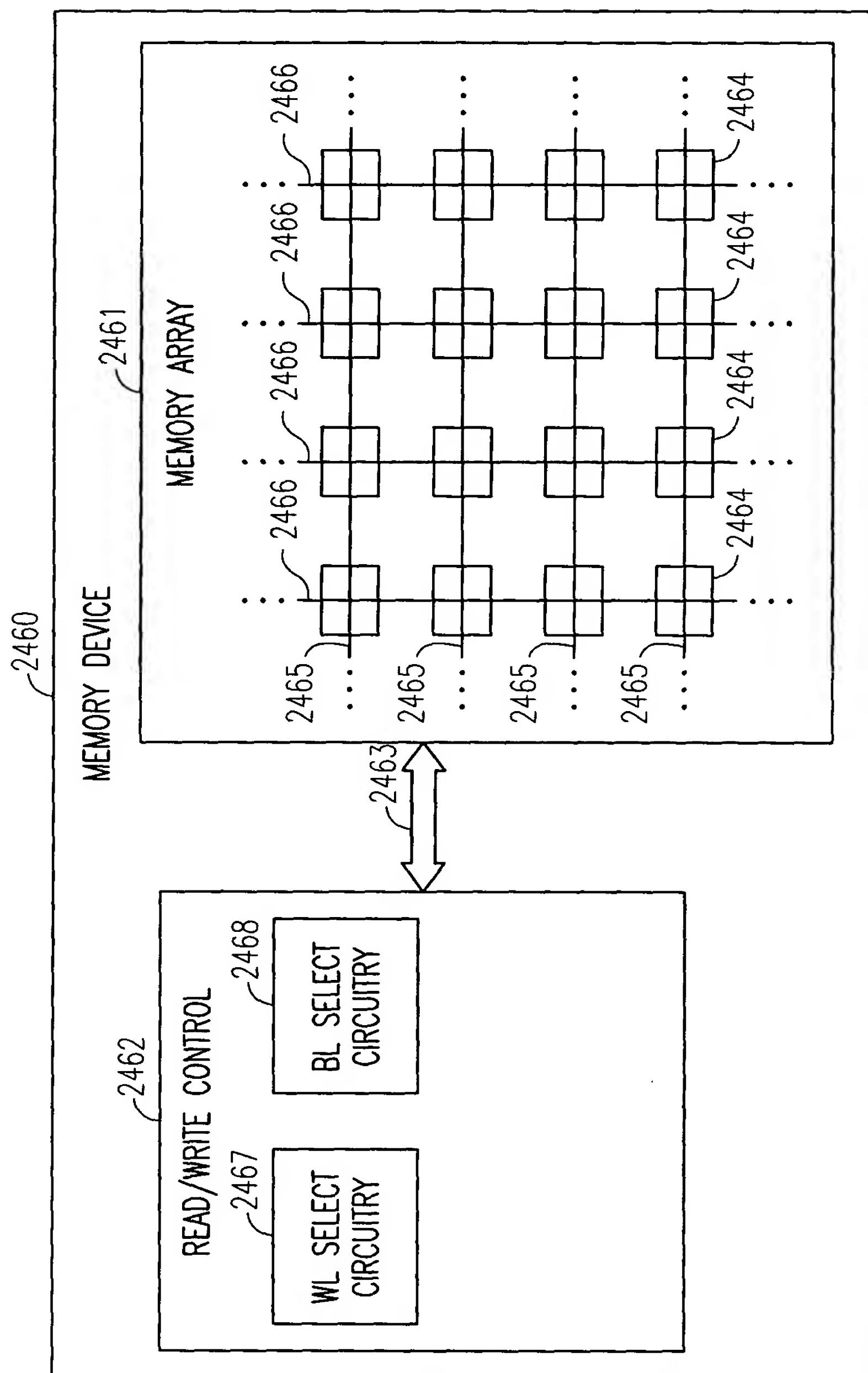


FIG. 24

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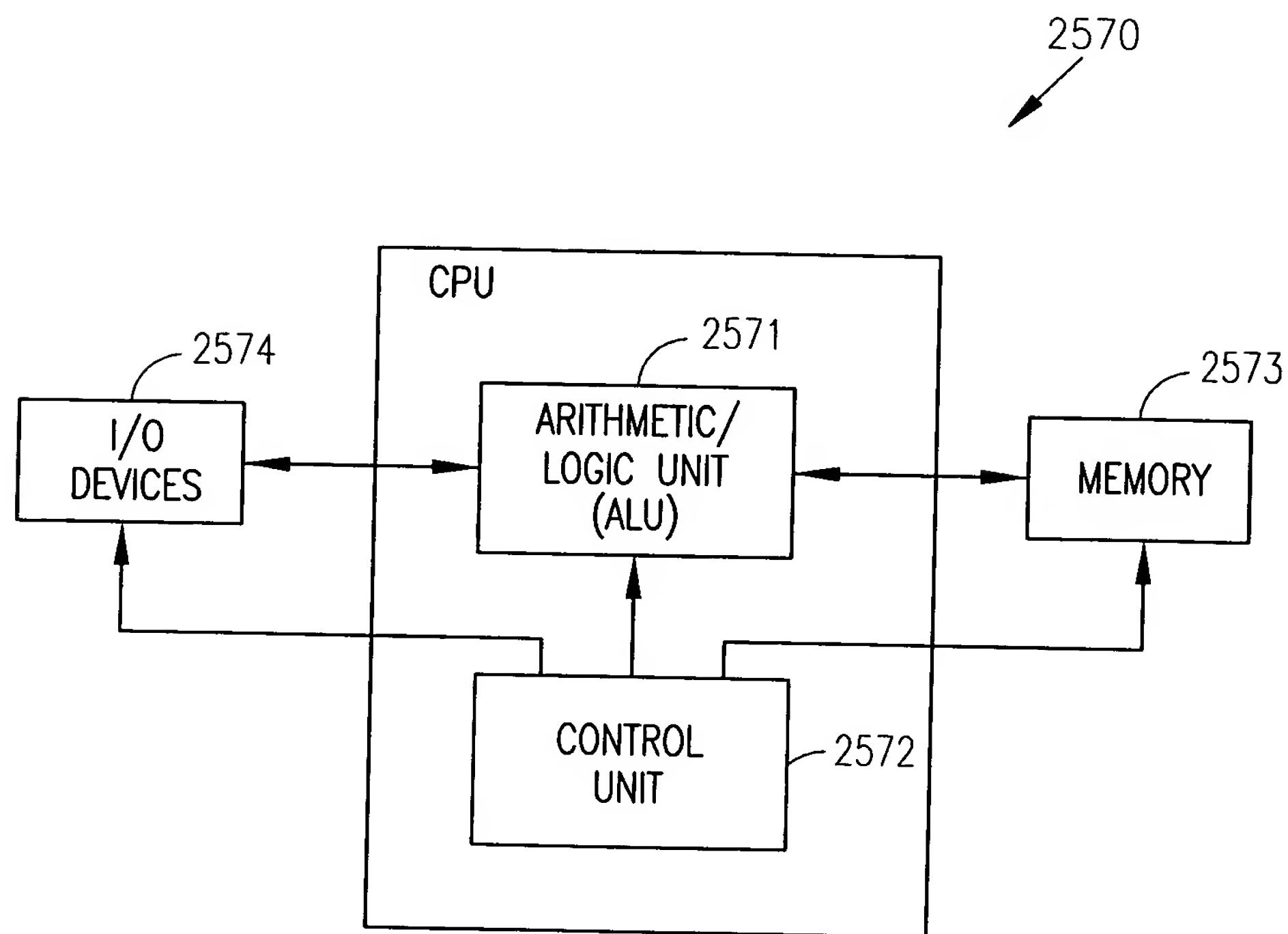


FIG. 25